Chronic appendicitis in children

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Abstract

Question While the diagnosis of acute appendicitis is relatively straightforward, chronic appendicitis is an entity that can be controversial and is often misdiagnosed. How and when should clinicians be investigating chronic appendicitis as a cause of chronic and recurrent abdominal pain in the pediatric population?

Answer Chronic appendicitis is a long-standing inflammation or fibrosis of the appendix that presents clinically as prolonged or intermittent abdominal pain. It is often a challenging diagnosis and might result in complications such as intra-abdominal infections or bowel obstruction or perforation. Clinical presentation, along with imaging studies, can help the clinician rule out other conditions, and among those who are diagnosed, for many children, appendectomy results in partial or complete resolution of pain symptoms.

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Acute appendicitis is a common cause of abdominal pain in children and includes inflammation of the appendiceal lumen secondary to an obstruction.[1] It is an acute condition frequently requiring urgent surgery with an incidence of about 18 to 29 per 10 000 children.[2] It is commonly characterized by an acute onset of umbilical pain migrating to the right lower quadrant and is associated with fever, anorexia, nausea, vomiting, lethargy, elevated inflammatory markers, tenderness in McBurney point, guarding, and rebound tenderness.[1,3]

Although it is a rare condition, there are multiple case reports suggesting the existence of chronic appendicitis.[1,4] Chronic appendicitis was initially reported by Crymble and Forsythe in 1949[5] as a condition with 1 or more mild attacks of appendicitis occurring in a sequence that might include more severe attacks. The definition has changed very little over the years and the condition is best defined today as a long-standing inflammation or fibrosis of the appendix that presents clinically as prolonged (>48 hours) or intermittent abdominal pain.[6,7] It is often a challenging diagnosis[8] and might result in complications such as intra-abdominal infections or bowel obstruction or perforation.[9] Clinicians should suspect chronic appendicitis in patients presenting with chronic or recurring right lower quadrant abdominal pain.

The existence of chronic appendicitis has been controversial in decades past, and contemporary debate surrounds the definition and workup of this condition.[10-12] In one hospital in Altenburg, Germany, the rate of appendectomies increased dramatically owing to parental appeal to find a diagnosis for long-term symptoms of abdominal pain.[10] Most (83%) children with postsurgical histologic findings that included "chronic appendicitis changes" had their abdominal pain resolved.[10]

The incidence rate of chronic appendicitis is about 1.5% in patients who present with symptomatology similar to acute appendicitis in the general population.[4] In one study,[7] three-quarters of all patients with pain in the right lower quadrant but no serious signs of inflammation showed histologic criteria for chronic appendicitis.

The pathophysiology of chronic appendicitis is thought to be related to a partial or chronic appendiceal obstruction, and diagnosis is frequently made following an appendectomy and based on histologic findings of chronic inflammatory changes.[6,12] It has been estimated that approximately 14% to 30% of patients undergoing an appendectomy will have findings consistent with chronic appendicitis.[3,13] The recognition of chronic appendicitis is important in children, as careful investigation and treatment can alleviate symptoms and reduce complications.[14]

Clinical presentation

Reports of chronic appendicitis suggest substantial variability in symptomatology.[1,6] Patients most commonly report abdominal pain lasting typically for more than 48 hours or recurrent episodic pain.[12,15] The pain is usually described as mild to moderate, mostly in the right lower quadrant, and can last up to months or even years.[14,15] The pain can be present with or without fever or other associated systemic symptoms that are classically seen in acute appendicitis, and laboratory test results might reveal a normal white blood cell count.[9,15]

Of 44 patients with more than 1 month of right lower quadrant abdominal pain from Wisconsin who

underwent laparoscopic exploration and appendectomy, 28 patients (63.6%) had abnormal histology identified on appendiceal examination and 14 (31.8%) had other abnormalities.[16] As many as 31 (70.5%) had partial or complete resolution of symptoms at 2 years.[11] Of 112 patients who showed clinical signs of nonacute appendicitis and underwent appendectomy in Munich, Germany, 42% were reported to have chronically inflamed appendices and 51% had fibrotic findings.[6]

In a patient with recurrent or chronic right lower quadrant pain and tenderness, in the absence of peritoneal findings or abnormal laboratory investigation findings, chronic appendicitis should be considered.

Imaging

Imaging studies might be helpful in the diagnosis of chronic appendicitis. Ultrasonography might be valuable in order to identify alternative diagnoses such as acute appendicitis, urogenital diagnoses, or inflammatory conditions of the intestine or mesentery.[4]

With equivocal ultrasound testing (nondiagnostic or showing normal tissue), providers must rely on the clinical presentation to determine the need for more advanced imaging such as computed tomography, magnetic resonance imaging, or endoscopy.[4,12]

Computed tomographic findings of chronic appendicitis might include pericecal stranding, dilated appendix, apical thickening, adenopathy, appendicolith, abscess, arrowhead sign, phlegmon, and fluid.[7,12] In the pediatric population the clinician should also consider magnetic resonance imaging if available.[16]

Management

The management method of choice for chronic appendicitis is surgical exploration, most typically laparoscopically, followed by an appendectomy if no other obvious pathology is identified.[8,17-19] In 2 studies with a combined total of 43 patients aged 5 to 17 years, 89% of children reported complete relief of symptoms a year following appendectomy.[20,21] At 2 years, relief of symptoms was documented in 70% of children in 2 studies.[11,21]

Conclusion

Chronic appendicitis is a diagnosis characterized by long-standing or recurring right lower quadrant pain and tenderness that is associated with histopathologic changes consistent with chronic inflammatory changes. Appendectomy provides symptomatic relief for most patients. In the evaluation of a child with chronic abdominal pain, especially in the right lower quadrant, chronic appendicitis should be included in the differential diagnosis and surgical consultation should be considered.

Competing interests
None declared

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